

## REMARKS

### Status of the Claims

Claims 25-26, 28-34 and 36 are now present in this application. Claim 25 is independent.

Claims 1-24 and 35 were previously canceled. Claim 27 is newly canceled.

Claim 25 has been amended to recite a cyclization ratio of the cyclized rubber of claim 25 from 60% to 90%. Support for this amendment can be found on paragraph [0045] of US 2006/0127655 (which is the pregrant publication of the present application).

New claim 36 is drawn to a cyclized rubber "obtained by dissolving a conjugated diene polymer into a hydrocarbon solvent, causing the conjugated diene polymer to react the presence of an acid catalyst, subsequently inactivating the acid-catalyst, and removing the residue of the acid catalyst and the hydrocarbon solvent". Support for this claim can be found in paragraphs [0056] and [0063] of US 2006/0127655. No new matter has been added.

### Issues Under 35 U.S.C. 103

Claims 25-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vervloet (USPN 3,393,176) as evidenced by the admitted prior art (pages 1-4) or Khelghatian et al. (USPN 3,682,693, entire document) in general. Applicants respectfully traverse the rejection.

### Legal Standard for Determining Prima Facie Obviousness

MPEP 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

- (a) determining the scope and content of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating any evidence of secondary considerations.

*Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. *See* MPEP 2143.03.

#### Advantages of the Present Invention

The present invention is drawn to a process for producing a laminate, comprising the step of laminating a thin film, on a surface of a polymer substrate produced by incorporating a cyclized rubber, which is a conjugated diene polymer cyclized product or a derivative thereof, into a polymer-molding material made of a non-polar hydrocarbon resin, by a dry film-forming method, and

wherein the film thickness of the thin film is from 1 nm to 100  $\mu$ m; and a cyclization ratio of the cyclized rubber is from 60% to 90%.

By laminating the thin film on a surface of a polymer substrate produced by incorporating a cyclized rubber, which is a conjugated diene polymer cyclized product or a derivative thereof, by a dry film-forming method, the present invention attains the effect of providing a laminate having good adhesiveness.

Further, by using a cyclized rubber having a cyclization ratio from 60% to 90%, the present invention attains remarkably excellent adhesiveness to the thin film.

Applicants respectfully submit that the present invention nor the advantageous effects derived therefrom are taught or fairly suggested by the cited references.

#### Patentable Distinctions between the Present Invention and the Cited References

Vervloet discloses that the cyclized rubber such as a cyclized product of polyisoprene is suitable in coatings, paints, and printing inks, and particularly in compounding with poly alpha-olefin such as polypropylene to improve the dispersibility of a pigment and the like. However, the Examiner admits that other than the mentioning in Example I(L) that the cyclized product having a degree of cyclization of about 50% was obtained, Vervloet is

completely silent regarding the cyclization ratio. Accordingly, unlike the present invention, it is apparent that Vervloet does not disclose or fairly suggest the cyclization ratio of 60% to 90%, as presently claimed.

Moreover, the Examiner comments that "*it is well established in the art that polypropylene films can be subjected to a dry film coating process as evidenced by Khelghatian or the admitted prior art*" and as such, application of this technique to the film of Vervloet would have been easy for the skilled person (lines 4 to 13, page 3 of the outstanding Office Action).

However, what is described in the "Background Art" section of the specification for the present application is that a nonpolar polymer such as hydrocarbon resin has characteristics of being poor in adhesiveness to a thin film vapor deposited, and a treatment of physically surface-roughening treatment or applying a compound having polar properties is needed to laminate the thin film by a dry film-forming method. In *In re Nomiya*, 184 USPQ 607 (C.C.P.A. 1975), the C.C.P.A. determined that even if there has been an admission of prior art, this admission of prior art will still not render an invention obvious if it points out the source of the problem that the invention solves.

It should not be necessary for this court to point out that a patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is *part* of the "subject matter as a whole" which should always be considered in determining the obviousness of an invention under 35 U.S.C. 103. *In re Antonson*, 47 CCPA 740, 272 F.2d 948, 124USPQ 132; *In re Lennert*, 50 CCPA 753, 309 F.2d 498, 135 USPQ 307. The court must be ever alert not to read obviousness into an invention on the basis of the applicant's own statements; that is, we must view the prior art without reading into that art appellant's teachings. *In re Murray*, 46 CCPA 905, 268 F.2d 226, 122 USPQ 364; *In re Sporck*, 49 CCPA 1039, 301 F.2d 686, 133 USPQ 360. The issue, then is whether the teachings of the prior art would, *in and of themselves and without the benefits of the appellant's disclosure*, make the invention as a whole, obvious. *In re Leonor*, 55 CCPA 1198, 395 F.2d 801, 158 USPQ 20. (Emphasis in original) *In re Nomiya*, 509 F.2d 566, 571, 184 U.S.P.Q. 607, 612 (C.C.P.A. 1975).

In this case there has been no admission of prior art. Even if one assumes *arguendo* that the subject matter discussed in the Background Art section is prior art, this disclosure depicts the problem that the invention solves.

The Examiner also relies on Khelghatian. However, the technique disclosed in Khelghatian is a technique to improve adhesion of a vapor-deposited film by adding rosin resins introduced with polar group to polypropylene.

In other words, what the “Background Art” section of the specification for the present application and Khelghatian describe is a mere fact that it is necessary to conduct a physically surface-roughening treatment or to blend a compound having polarity because a sufficient adhesiveness cannot be obtained by merely laminating a thin film to a polypropylene film by a dry film-forming method. In other words, with the technical common knowledge at the time of filing the present application, it was difficult to laminate a thin film by a dry film-forming method on a film made of a nonpolar polymer without conducting a physical surface-roughening treatment or blending of a compound having polarity.

On the other hand, Vervloet discloses a film produced by polypropylene and a cyclized product of polyisoprene, both of which are nonpolar polymers.

As explained above, a nonpolar polymer has characteristics of being poor in adhesiveness to a vapor deposited-thin film, and as such, it would have been reasonable for the skilled person to judge that a treatment of physically surface-roughening treatment or blending of a compound having polar properties is needed to laminate the thin film by a dry film-forming method.

Accordingly, considering the technical common knowledge at the time of filing the present application, applying a dry film-forming method directly to the film of Vervloet should have been considered a method better *avoided* by the skilled person.

Vervloet teaches the blending of the cyclized rubber with an alpha-olefin such as polypropylene contributes to the improvement in the possibility of dispersing a pigment as well as the dyeability.

However, improvement of these properties is not directly related to the improvement of the adhesiveness to the thin layer laminated by a dry film-forming method.

Accordingly, the skilled person would have found it difficult to attain the lamination of a thin layer by a dry film-forming method to a film of Vervloet.

As explained above, Vervloet is totally silent about the cyclization ratio of the present invention, and it would have been difficult to attain the lamination of a thin layer by a dry

film-forming method to a film of Vervloet which is produced with polypropylene and a cyclized product of polyisoprene.

Given the foregoing, the present invention is not obvious over Vervloet either taken alone or in combination with Applicants' disclosure at pages 1-4 of the present specification or Khelghatian et al. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 29

Applicants respectfully submit that claim 29 is further distinguished from the cited art. Claim 29 recites that the cyclized rubber is the derivative of the conjugated diene polymer cyclized product, and that the derivative of the conjugated diene polymer cyclized product is a compound produced by introducing a polar group into the conjugated diene polymer cyclized product by a modifying reaction using a polar-group-containing compound.

Regarding claim 29, the Examiner comments that Vervloet discloses the introduction of a polar amine group (see lines 14-19, page 2 of the outstanding Office Action).

However, the amine described in Vervloet is intended to be added as a neutralization agent of a cyclization catalyst (acid) and introduction of a polar group into a cyclized product is not intended. In Example I (K) of Vervloet, stearylamine was added. Since no reaction point with the cyclized product (ethylenically unsaturated bound) exists, it is clear that the stearylamine does not react with the cyclized product.

Therefore, the Examiner's comments on claim 29 are inappropriate.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, PhD, Registration No. 43,575 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

By 

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